



Bulletin

of the

Native Plant Society of Oregon

Dedicated to the enjoyment, conservation, and study of Oregon's native vegetation

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Summer Intern Report

Studying Greene's Mariposa Lily in the Cascade-Siskiyou National Monument

by Angela Brandt

The following is the second in our latest series of articles in which NPSO/Institute for Applied Ecology interns discuss their activities during the 2003 field season. Interns participated in monitoring, restoration and other research projects conducted by IAE staff throughout Oregon during the past summer. These projects focused primarily on threatened and endangered plant species and invasive weeds in the Siskiyou, coastal areas, the Cascades, and the Willamette Valley. In this article, Angela Brandt discusses our efforts in collaboration with the Medford District BLM to evaluate the basic biology and effects of grazing on a rare plant in the Cascade-Siskiyou National Monument. For more information on internship opportunities, please contact IAE at kayet@peak.org, 541-753-3099 or visit www.appliedeco.org. Thanks again to NPSO for contributing to botanical education and work experience.

Tom Kaye, Institute for Applied Ecology, Corvallis, Oregon

The Cascade-Siskiyou National Monument

National monuments are established on federal lands by presidential proclamation to provide protection to areas of scientific and historical interest. On June 9, 2000, President Clinton designated 52,947 acres of public land on the Bureau of Land Management, Medford District, as the Cascade-Siskiyou National Monument. The Cascade, Siskiyou, and Klamath Ranges meet in the monument and many species from these different ecoregions intermingle there, resulting in high biodiversity. Additionally, the monument contains populations of several rare and endemic species, including Greene's mariposa lily (*Calochortus greenei*; Clinton 2000, www.or.blm.gov/csnm).

Greene's mariposa lily

Greene's mariposa lily is a federal species of concern, a state candidate for listing, and considered threatened throughout its range by the Oregon Natural Heritage Program (ONHP

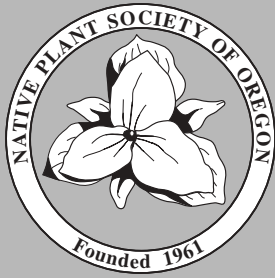
2001). The lily can be found in open areas of grasslands, shrublands, and oak woodlands between approximately 2200 and 3600 ft in elevation within Jackson County, Oregon, and Siskiyou County, California. The lily typically has one basal leaf, glaucous on both sides, and an erect flowering stem with 1-6 buds and 1 or 2 small stem leaves. The flowers are pink to purplish and cup-shaped, with a purple crescent above the gland and hairy inside (Brock 1996, 1988).

Much still remains to be learned about the lily's biology and ecology. Past surveys of Greene's mariposa lily populations in the monument focused on population size and often occurred several years apart (Brock 1996). Population and demographic studies of Greene's mariposa lily are complicated by two of the plant's traits. First, the lily's basal leaf tends to dry out by the time plants are flowering, making detection and identification of non-flowering plants difficult. Leaf herbivory can cause leaves to wither early in

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Native Plant Society of Oregon

World Wide Web

<http://www.NPSOregon.org>

E-mail Discussion List

To join send a message to majordomo@tardigrade.net, with the following in the body of the message:
subscribe npsos

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or correspond directly with Officers and Committee Chairs listed on the inside of the back page.

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The submission date is the 10th of each month for the following month's issue except for the Aug./Sept. issue which is July 24. Send submissions by e-mail to bulletin@NPSOregon.org.

Opinions expressed in this publication are those of the authors of the articles. They do not represent the opinions of the Native Plant Society of Oregon, unless so stated.

IT'S STILL RENEWAL TIME!

The NPSO membership year is January to December.

Check your address label on the Bulletin. If there's a 2003 on the top line, we haven't received your renewal yet.

It's also a good time to consider a tax-deductible contribution to our special funds. The Leighton Ho Memorial Award is used for research projects in western Oregon. The Rare and Endangered Plant Fund supports work with our most threatened plants. The Jean Davis Memorial Scholarship is awarded annually to a botany student at an Oregon college or university. You can also include a contribution to the Oregon Flora Project along with your dues.

NPSO brings you field trips, programs, classes, the monthly *Bulletin*, and *Kalmiopsis*. Your membership and donations make it possible to carry out more of the many projects that are needed to pursue the goals of NPSO.

Last Chance for Grant Proposals

Persons interested in applying for funding for small field research grants studying native plants of Oregon can obtain a copy of the program policy and guidelines from Dan Luoma, Field Research Grants Committee Chair, 3740 NW Harrison Ave., Corvallis, OR 97330. The material may also be obtained at NPSO's web site, <http://www.npsoregon.org/comm/FRGC.htm>. Research proposals are due by March 1, 2004.



TANYA HARVEY

Hairy manzanita (*Arctostaphylos columbiana*) is a very early bloomer; seen here in flower last February in Linn county.

Great Opportunity to Serve NPSO!

Do you love NPSO? Do you live or work near the Portland area? NPSO is looking for someone (such as YOU!) to serve as our NPSO representative at EarthShare. What is EarthShare? EarthShare is a federation of leading non-profit environmental and conservation organizations that work to promote environmental education and charitable giving through workplace giving campaigns. NPSO receives a large proportion of its annual income from EarthShare. We need a representative that will attend EarthShare meetings (in Portland) every month. For more information about this opportunity, please contact Shane Latimer at slatimer@jsanet.com.

State

June 25–27, 2004

Annual Meeting: The William Cusick and Blue Mountain Chapters will host this year's meeting in La Grande. Look for more information in upcoming issues of the *Bulletin*.

Blue Mountain

Meetings will be the same time and place, 1st Monday of the month through May. Community Meeting Room, SE corner of City Hall building in Pendleton; use SE corner entrance off rear parking lot. Contact person: Bruce Barnes, 541-276-5547.

February 2, Monday, 7:00 pm

Meeting: Projects on the Umatilla Indian Reservation. Cheryl Shippentower, botanist with the Confederated Tribes of the Umatilla Indian Reservation, will give the talk which was cancelled in January due to weather, about projects she is currently involved in.

March 1, Monday, 7:00 pm

Meeting: Plant and Bird Surveys for the Windmill Generating Project will be discussed by Anne Walsh and Karen Kronner.

April 5, Monday, 7:00 pm

Meeting: Rare Plants on the Umatilla National Forest presented by Jean Wood, botanist with the Umatilla NF.

Cheahmill

February 26, Thursday, 7:00pm

Meeting: Helen Gilkey: The Art of Botanical Illustration. Dr. Sharon Rose, professor of Biology at Willamette University will present a lecture and slide show on the history of botanical illustration, featuring the life and art of Dr. Helen Gilkey. Dr. Gilkey was primary illustrator for W. L. Jepson's publication (1925) of *Manual of the Flowering Plants of California* and

illustrated her own publications, including the recently updated and revised *Handbook of Northwestern Plants*. Dr. Gilkey's illustrations are on exhibit at Willamette University's Hallie Ford Museum of Art through March 13. 7:00 pm in the Carnegie Room at the McMinnville Public Library, 225 N. Adams St. For more information, call Erin Rainey at 503-435-8589.

Corvallis

February 7, Saturday, 9:00 am

Workshop Series: *Carex*. Keli Kuykendall will guide us through the

wonderful and often frustrating world of *Carex*. This is the first in a series of hands-on workshops running through April of this year. Focus will be on understanding the morphology of members of this genus and on using keys in the identification of species. Please bring dissecting equipment, and copies of Hitchcock & Cronquist and the Jepson manual. Due to physical limitations, class size will be limited to 20 people and participants will be required to have current NPSO memberships (new memberships encouraged). Workshops will be held in 1070 Cordley Hall, OSU campus, enter through northwest door by herbarium. Please register in advance by contacting John Syring at 541-752-0414.

February 9, Monday, 7:30pm

Meeting: Alien invaders—ecology and biological control of invasive plants. Dr. Peter McEvoy, professor in Botany and Plant Pathology at OSU, will be presenting his fascinating work on protecting our local flora from non-native invaders. Avery House, Avery Park, Corvallis. For more information contact John Syring at 541-752-0414.

February 28, Saturday, 9:00 am

Workshop Series: *Juncaceae*. Richard Halse, OSU Herbarium curator and professor, will be leading this workshop on the often overlooked *Juncaceae*. Focus will be on understanding the morphology of members of this family and on using keys in the identification of species. Please bring dissecting equipment, and copies of Hitchcock & Cronquist and the Jepson manual. Due to physical limitations, class size will be limited to 20 people and participants will be required to have current NPSO memberships (new memberships encouraged). OSU campus, Cordley Hall, room 1070, enter through northwest door by herbarium. Please register in advance by contacting John Syring at 541-752-0414.

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips take place rain or shine, so proper dress and footwear are essential. Trips may be strenuous and/or hazardous. Participation is at your own risk. Be prepared to sign a release form indicating this. For a sample copy check out the NPSO website. Please contact the trip leader or chapter representative about difficulty, distance, and terrain to be expected on field trips. Bring water and lunch. All NPSO field trips are open to the public at no charge (other than contribution to carpool driver) and newcomers and visitors are always welcome. National Forests require a Northwest Forest Pass for many field trip locations. Permits can be acquired at forest headquarters and ranger districts.

NOTICE TO FIELD TRIP CHAIRS AND LEADERS

The Forest Service and other agencies have set policies limiting group size in many wilderness areas to 12. The reason is to limit human impacts on these fragile areas. Groups using wilderness areas should be no larger than 12.

Corvallis Chapter Spring Plant Hunt and Photo Competition!

Plant Hunt: Looking for the first flowering native plant of 2004 in a natural ecosystem (no indoor plants/no garden plants) around the Corvallis area. Photo documentation and correct identification required, please email/get photo to me no later than March 5th.

Photo Competition: The theme is 'Spring Wildflowers 2004: Oh to be in the Corvallis Area'. Media and format to be decided by the artist, all photos will be put into digital format and displayed in powerpoint. Please submit photos to me no later than March 5th. Photos will be presented at the March monthly meeting and voted on by the membership at that time. To the victor the spoils: Each winner will receive a \$25 gift certificate to Big River and a coupon for a Native Plant of choice from Willamette Gardens. Good Luck...and think spring!! For more information contact John Syring at syringj@science.oregonstate.edu or 541-752-0414.

Emerald

February 23, Monday, 7:30 pm

Meeting: Rare and Endangered Plants of Lane County. Charlene Simpson, who specializes in Lane County flora, will use a lovely slide show to tell us stories of species losses, gains, and near misses. Charlene is a founding member of Emerald Chapter, state board Director-at-Large, lead author of the recently published *Lane County Checklist*, and co-chair of Emerald Chapter's R & E Committee. 7:30 pm, Room 115, Science Building, Lane Community College.

February 28, Saturday, 9:00 am

Field Trip: Lichen Identification Walk at Mt. Pisgah. Daphne Stone will teach lichen ID on the east side of Mt. Pisgah. Meet 9:00 am at South Eugene High School. We will return by 1:00 pm. For further information call Dave Predeek at 541-345-5531.

March 15, Monday, 7:30 pm

Meeting: The Why, What, When, and How of Landscaping with Native Plants. Join our local forest ecologist, horticulturalist, and landscape designer Whitey Lueck for a talk on how best to use native plants in your yard and garden. 7:30 pm, Room 115, Science Building, Lane Community College.

High Desert

February 27, Tuesday, 7:30 pm

Meeting: Development of Native Plant Materials for Central and Eastern Oregon. Berta Youtie, Ecologist with Eastern Oregon Restoration Services, will discuss the native plant communities in central and eastern Oregon which are in greatest need of restoration. She will also focus on key species for which native plant stocks need to be developed. Don't miss this exciting and forward-looking topic. Central Oregon Environmental Center, 16 NW Kansas Ave., Bend.

Klamath Basin

For information on the Klamath Basin Chapter, contact Sarah Malaby, 541-884-5703, smalaby@cs.com.

Mid-Columbia

February 4, Wednesday, 7:30 pm

Meeting: The Yellow Things are Called Petals. First in a series of workshops to make us all competent field botanists. Where else can you go from casual curiosity about wildflowers to being able to identify nearly all the vegetation that is out there? The *Dalles Chronicle* Meeting Room, 317 East Third St., The Dalles.

North Coast

For information on the North Coast Chapter, contact Janet Stahl at 503-842-8708 or jjs@oregoncoast.com.

Portland

February 10, Tuesday, 7:00 pm

Meeting: Relocating rare plant populations in the Portland area: which ones should we look for first? Tom Kaye and Dick Brainerd, co-chairs of NPSO's Rare and Endangered Native Plant committee, help kick-off the Portland chapter's search for rare plants around Portland. The presentation will establish the groundwork for prioritizing relocation of rare plant populations known to have existed, but not monitored in past years. The Portland chapter will use the information for further research, setting up spring field trips to relocate rare plants, and establishment of a monitoring program. Fireside Room (#355), First United Methodist Church, 1938 SW Jefferson St., Portland. Contact Leslie Rossmell, 503-335-3987, lrossmell@hotmail.com.

Siskiyou

February 19, Thursday, 7:30 pm

Meeting: An Ecological Study of Subalpine Flora on Preston Peak in the Siskiyou Mountains. Jamie O'Donnell will share his SOU master's project on the diverse flora and endemic species on Preston Peak. This project establishes baseline data on the subalpine flora of this Siskiyou peak for future climate change research. Mountain ecosystems show greater sensitivity to climate change than many other ecosystems because the rate at which climate factors shift along altitude gradients. Meetings are held in room 171 of the SOU Science Building, Ashland. For more information, contact Cynthia Maclaren, 541-482-0899.

March 18, Thursday, 7:30 pm

Meeting: Travels in Japan—A Different Serpentine Experience. Dr. Frank Lang will share one of his recent adventures with a botanical travelogue featuring the serpentine flora of Northern Honshu and Hokkaido. A feast of beer, raw fish, hot springs, and the trail are promised. Dr. Lang is "Founding Father" of the Siskiyou Chapter (1977),

and three-term president of the NPSO. Well known as the producer of the public radio program, *Nature Notes*, and as a teacher of Botany at Southern Oregon University until 1997, it will be a treat to spend the evening with him. Room 171 of the SOU Science Building, Ashland. For more information, contact Cynthia Maclaren, 541-482-0899.

Umpqua Valley

February 12, Thursday, 7:00 pm

Meeting: Orchids of Southern Oregon. Jeanne Standley of the BLM and a chapter member will give a presentation at the Mercy Medical Center Community Education Bldg., 2459 Stewart Parkway, Roseburg. For more information call Ted Shattenkerk at 541-679-6953.

Willamette Valley

January 31, Saturday, 9:00 am

Workshop: Gardening with Native Plants. The Marion Soil and Water Conservation District and the Willamette University Biology Department are jointly sponsoring this half-day workshop at the Willamette University Law School, Paulus Lecture hall. Topics will include native plant identification, weed management, using native plants in restoration projects, attracting wildlife, and naturescaping. The workshop will be free, and the sponsors will be accepting non-perishable food donations for Marion-Polk Food Share at the event. Refreshments and information packets will be provided. To pre-register, contact Marion Soil and Water Conservation District at 503-391-9927.

February 19, Thursday, 7:00 pm

Meeting: Native Plants and Butterflies. Eric Wold, past president of the Eugene chapter of the North American Butterfly Association, will speak on native plants and butterflies. The meeting will take place in Room 225, 600 State Street, First United Methodist Church. Enter through the door on the State Street side marked, "Church Office." For more information, call John Savage, 503-399-8615.

William Cusick

For information on the William Cusick Chapter call Frazier Nichol at 541-963-7870.

NPSO Items for Sale

Vascular Plants of Lane County, Oregon: An Annotated Checklist by C. Simpson, J. Koenig, J. Lippert, R. Love, B. Newhouse, N. Otting, S. Sundberg, D. Wagner, and P. Warner. Emerald Chapter, NPSO. This new county checklist includes more than 1,740 species and varieties representing 39 percent of the 4,460 plants currently recognized by the Oregon Flora Project at Oregon State University. It also includes a color map of Lane County's five major ecoregions; and information about rare and endangered species, noxious weeds, and escaped cultivated plants. Information is included for every species on habitat, ecoregion, occurrence frequency, and native or non-native origin. To order, send **\$15** payable to Emerald Chapter, NPSO to Lane County Checklist, Emerald Chapter, NPSO, PO Box 902, Eugene, OR 97440-0902.

NPSO Membership Directory lists names, addresses, phone numbers, and e-mail address of NPSO members (April 2003). Available from Jan Dobak, 2921 NE 25th Avenue, Portland, OR 97212-3460. **\$3 postpaid.**

Camas Tee Shirt from Cheahmill Chapter. Beautiful moss green or tan tee shirts with botanical drawing in color of *Camassia quamash* by Carlton, OR artist and Cheahmill chapter member Marilyn Karbonski. Short sleeve, high quality, **\$15 plus shipping.** For ordering information call 503-852-7230, or send order to PO Box 291, Carlton, OR 97111.

The "**Atlas of Oregon Carex**" was NPSO's first Occasional Paper. The Atlas has 128 location maps, one for each Carex taxon in the state of Oregon. Also included are a synonymy, fun facts about sedges, a history of the project, and Oregon geography maps. **Price: \$5.**

"Louis F. Henderson (1853-1942): The Grand Old Man of Northwest Botany" by Rhoda M. Love. NPSO's second Occasional Paper is the only existing publication with detailed coverage of the long and fascinating life of this John Muir-like western character. Included: 56 pictures, 133 notes, chronology, list of plants named for Henderson. Third printing nearly sold out. Order your copy today! **Price: \$10.**

To order either or both Occasional Papers, send check for the appropriate amount (made payable to NPSO) to: **Occasional Papers, Native Plant Society of Oregon, PO Box 902, Eugene, OR 97440-0902.**

Oregon's Rare Wildflower Poster depicts Punchbowl Falls and three of the Columbia River Gorge's endemic wildflowers. Text on the back describes the natural history of the Gorge and the mission of the NPSO. Available from Stu Garrett, 21663 Paloma Drive, Bend, OR 97701, 541-389-6981. Individuals may order posters at **\$12 each**, plus \$3 per order for shipping. Posters are mailed in tubes.

OTHER EVENTS

Join the Celebration & Reunion at 25th Mount Pisgah Arboretum Wildflower Festival

May 16, 10 am - 4 pm (the weekend after Mother's Day)

"Honoring the Founders: Celebrating 25 years of Wildflower Displays"
Guiding people to make deep and meaningful connections with the natural world

On May 18, 1980 Mount St. Helens exploded and the first Wildflower Festival at Mt. Pisgah Arboretum opened. In 2004 we want to have a grand celebration and reunion of all the folks that have been involved in the festival from the very beginning and over its 25-year history.

If you would like to join us for this special celebration or be involved in any aspect of planning the events please contact Gail Baker, Science Division, Lane Community College, bakerg@lanecc.edu or 541-463-5085. This will put you on the contact list and keep you updated about events.

Berry Botanic Garden Events

Portland's Berry Botanic Garden has a number of native plant oriented events. To register or to get more information on these and other events at the garden call Kris at 503-636-4112x22 or visit their website at <http://www.berrybot.org>.

Nature Journaling with Pen and Watercolor

February 9 - March 1,
Mondays, 10 am - 1 pm

Record impressions, experiences and musings of nature, while traveling or in the garden. Naturalist and watercolorist Jude Siegel will share simple techniques in her relaxed way, encouraging you to explore drawing and watercolor skills and increase awareness of nature. No art experience is necessary. Prepare to be outside as well as inside, weather permitting. A supply list is mailed to registrants. \$60 (\$48 BBG Members) Limit 10.

On Friday there will be a social hour and tour of the new LCC Herbarium and Science & Math building, followed by dinner at the new LCC conference & Events Center. Saturday is the Festival set-up, a social and botanical gathering focusing on the important task of the setting up the flower display of over 300 species. Sunday is the day of the festival. Come to the "Identification Table" at the Quonset hut to socialize and help Festival attendees with their botanical questions.

Yamhill Soil & Water Conservation Native Plant Sale

February 12, 13, 9:00 - 6:00 pm
February 14, 8:00 - 3:00 pm

It's time to start getting your orders in for the Yamhill Soil and Water Conservation District's annual Native Plant Sale! Due to the huge selection and high quality of the seedlings and bare-root stock, the Native Plant Sale has become very popular with gardeners, farmers and rural landowners alike. For those who have questions, Yamhill SWCD staff will gladly offer advice on choosing, planting, and caring for various species. Although plants can be purchased the dates of the sale, pre-ordering is encouraged in order to ensure availability. No down payment is necessary. Landowners can find order forms and photos of many plants on the district's web site at www.yamhillswcd.org or copies of the order form can be obtained at the office at 2200 SW 2nd Street, McMinnville, or by calling 503-472-6403.

Marion Soil & Water Conservation District Native Plant Sale

February 20, Friday, 10am-6pm
February 21, Saturday, 9am-5pm

The Marion Soil and Water Conservation District will be holding its Second Annual Native Plant & Tree Sale near the SWCD office in the Village East Office Complex, located at the north-west corner of the intersection of Lancaster Dr NE and Wolverine St NE in Salem (near McKay High School). At the sale, we will be featuring great prices on bareroot plants and trees including Douglas Spirea, Nootka Rose, Pacific Madrone, Red & White Alder, Vine Maple, and Red-Flowering Currant. Plants will be sold on a first come, first served basis. For questions or more information, please call the Marion SWCD office at 503-391-9927 or visit www.open.org/mariswcd.

ONRC Celebrates 30th Anniversary

February 21, Saturday, 6 - 10 pm
Lane Community College's
conference center, Eugene

Oregon Natural Resources Council (ONRC) has been working to protect and restore Oregon's wild lands, wildlife and waters for 30 years and it's time to celebrate!

This event includes dinner prepared by the LCC culinary arts program, a no host bar, live music, guest speakers, stories and reminiscences. A silent auction will feature valuable goods and services, including a McKenzie River raft trip for two and a Nova Sports Equipment Haida canoe.

Admission is \$35, and reservations are required by February 13. Details and reservations available by calling Chandra at 541-344-0675.

Helen M. Gilkey Botanical Art Exhibit

The Hallie Ford Museum of Art in Salem, Oregon will feature an exhibition entitled Helen M. Gilkey: the Art of Botanical Illustration, from January 10 through March 13, 2004. On February 13, Dr. Aaron Liston will present a lecture on the history of botanical illustration in the Roger Hull Lecture Hall from 7-8 pm. In addition, a botanical illustration workshop is scheduled for March 20-21 at Willamette University. For further information, please contact Dr. Sharon Rose at roses@willamette.edu.



3rd annual Siskiyou Environmental Film Festival Ashland Oregon February 24-29

*Award winning films from around the region and around the world
offering people and the planet hope for the future.*

For more information contact Barry Snitkin at 541-592-4459,
barry@siskiyou.org or <http://www.siskiyou.org/seff/seff.html>

Mount Pisgah Arboretum Events

Seavey Loop Rd., Eugene, call 541-747-1504 for information or to register.

First Signs of Spring Walk February 7, Saturday, 1-3pm

Meet at the Visitor Center, rain or shine. Suggested donation \$3.

Neighborhood Hazardous Tree Walks

February 8, Sunday, 1:30-3:30pm
February 15, Sunday, 1:30-3:30pm
February 22, Sunday, 1:30-3:30pm

(co-sponsored by the Eugene Tree Foundation). Walks feature different neighborhoods, trees, and potential hazards. Experts will touch on the importance of 'smart landscaping' and proper maintenance of urban trees. Observe a diversity of healthy, diseased, damaged, and well and poorly maintained trees in the area. Fee: \$5 per person. Pre-registration required.

Lichen Walk February 14, Saturday, 10am-noon

Join local lichen expert Daphne Stone for this informative walk. Learn about the symbiotic relationships between algae and fungi that create the many species of lichens, and explore their ecological importance in Oregon forests and woodlands. Meet at the Visitor Center, rain or shine. Suggested donation \$3.

"Gardening with Nature" workshop series

Taught by Evelyn Hess of Lorane Hills Farm & Nursery. Fee: \$20 (\$15 MPA members). The cost for the entire series is only \$90! (\$65 MPA members) Pre-registration required.

Part 1 Gardening with Nature February 21, Saturday, 1-4pm

Explore gardening methods which will help restore ecological balance instead of conventional ways which can harm the delicate processes of soil and water, deplete natural resources and spread invasive weeds.

Part 2 Knowing & Growing Native Plants February 28, Saturday, 1-4pm

Explore native plants and learn which grow best in what environments, which are appropriate for your garden, and how to use natural plant communities as models for designing your garden.

Trees in the Rural Landscape February 28, Saturday, 10am-1pm

Visit hazard tree demonstration projects, observe trees damaged or toppled during storms, and weakened due to isolation, soil erosion, insect damage or old age. Local arborists will identify and assess damaged trees, and engage participants in discussion, while demonstrating the treatment, pruning, or removal of the hazard. Fee: \$10. Pre-registration required.

Jepson Herbarium Workshops for 2004

by Rhoda Love, Vice-president

The Jepson Herbarium at Berkeley has published its 2004 *Public Workshop Schedule*. Their booklet, which was mailed early in January, offers a variety of programs in Basic Botany, classes in botanical illustration, and field courses. Having participated in a marvelous Jepson Field Workshop in the past, several of the latter caught my eye. For example: "Death Valley Flora;" "Mt. Diablo Flora;" "Big Bear Valley;" "Spring Mountains Nevada;" and "Mt. Lassen Flora." Fees, which fall in the \$200-\$500 range, cover transportation, food, and lodging. For additional information and the full schedule visit: <http://ucjeps.berkeley.edu/jepwkshp.html> or contact Staci Markos at 510-643-7008 or smarkos@socrates.berkeley.edu.

Greene's Mariposa Lily

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the season and dry leaves of other *Calochortus* species (especially *C. tolmiei*) may be indistinguishable from Greene's mariposa lily.

Second, the lily is assumed to exhibit bulb dormancy, possibly for several years at a time, which complicates estimates of population size and trends (Brock 1996, 1988). Therefore, a careful demographic study of Greene's mariposa lily is necessary to help evaluate its status and support its effective management.

Concern over livestock impacts

Much private land lies adjacent to the public land within the geographical boundaries of the National Monument and sections of the monument are still used by some private landowners, particularly for livestock grazing. The proclamation establishing the national monument stated that "the impacts of livestock grazing on the objects of biological interest in the monument" must be studied and determined insignificant

for grazing to continue (Clinton 2000).

In 2001, the BLM completed a Draft Study of Livestock Impacts on the Objects of Biological Interest which describes goals and proposed methods for several projects within the monument, among them a plan for Greene's mariposa lily. Three objectives were identified for the lily: 1) gain better understanding of the plant's biology, 2) determine population trends, including how they are affected by grazing and changing community structure, and 3) evaluate livestock impacts on population size (USDI 2001).

Herbivory is suspected to be the prime threat to populations of Greene's mariposa lily, although encroachment of exotic invasives may also negatively affect the species. Wild herbivores, such as deer, an unidentified moth, and jackrabbits, may have an equal or greater impact on the plant than cattle. It is often difficult to tell what is eating the plants, however, because deer, cattle, and rabbits may leave similar marks on the leaves. Though some herbivory is a natural part of the lily's ecology, current grazing intensity is likely

greater than it has been historically, which may contribute to population decline (Brock 1996, 1988).

A long-term study is initiated

In 2003, IAE began a collaborative project with the Medford District BLM to study the effects of grazing on Greene's mariposa lily and associated vegetation in the monument. The experiment consists of 5 pairs of 2x2 m plots (one fenced and one unfenced in each pair) at each of three sites, for a total of 30 plots. The sites—Agate Flat, Oregon Gulch, and Colestine—were chosen to capture high, medium, and low levels of cattle grazing, respectively, within the monument. The study is planned to last for at least ten years because the effects of fencing to exclude livestock may take several years to show. At this time, only preliminary and baseline information are available.

For each lily in the plots we recorded location, size measurements, and presence of deer/cattle or insect herbivory. Community data were also collected, including percent cover of each species. The number of Greene's mariposa lilies within the plots varied from 3 to 59, with an average of 21. Of the sampled lilies, 24% were reproductive overall. The proportion of lilies that were reproductive was more than twice as great at Agate Flat as the other two sites. Agate Flat is the most heavily impacted by human activities (roads and cattle grazing). Reasons for this pattern are not known, but could include a low establishment rate of juvenile plants in grazed and weedy areas and/or better conditions for flowering at that site.

Herbivory was common in every plot. Wildlife/cattle herbivory was detected on 71% of the lilies and insect herbivory on an average of 36% across the monument, with only a few plants exhibiting both types of herbivory. No obvious differences in grazing intensity were apparent between the sites, suggesting that wildlife do indeed utilize Greene's mariposa lily. Herbivory of flower buds, often their total removal, occurred on an average of 18% of the reproductive plants.

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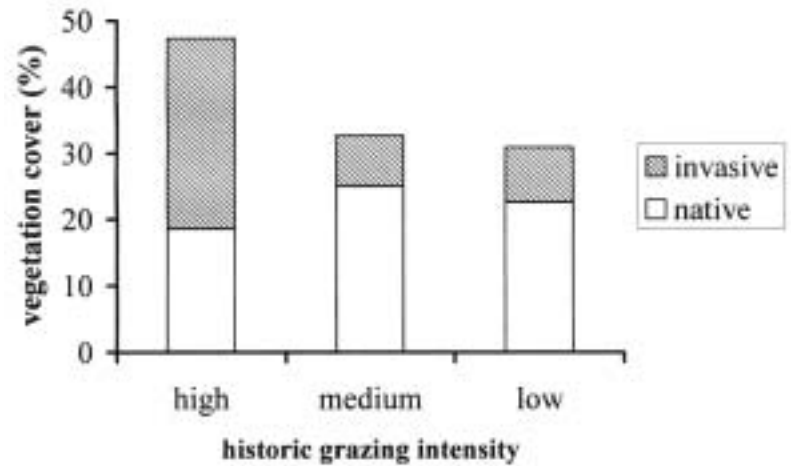


TOM KAYE

Fenced demographic study plot for documenting the long-term effects of excluding livestock on Greene's mariposa lily.



Greene's mariposa lily (*Calochortus greenei*) is a rare plant of the Cascade-Siskiyou National Monument.



Percentage cover of native and invasive plants in *Greene's mariposa lily* habitat at three sites with different historic levels of grazing intensity in the Cascade-Siskiyou National Monument.

Greene's Mariposa Lily

continued from page 20

The plant communities at each of the three study sites exhibited differences, but all were invaded by exotic species, such as medusahead rye (*Taeniatherum caput-medusae*), bulbous bluegrass (*Poa bulbosa*) and exotic annual bromes (*Bromus* spp.). At Agate Flat, where grazing by livestock has been historically most intense, vegetation cover was highest and exotic plants made up the largest share compared to the other sites. These baseline conditions represent the pre-fencing environment at the sites against which future samples will be compared.

The Bureau of Land Management completed a draft management plan for the monument in 2002 (USDI 2002). Information from this on-going study of *Greene's mariposa lily* will help determine appropriate management of this rare species and its habitat, thus ensuring its persistence and contribution to the unique diversity of the Cascade-Siskiyou National Monument.

I would like to thank IAE and NPSO for a wonderful summer experience, especially Tom Kaye and Carolyn Menke, who worked on this project with me. Special thanks to Mark Mousseaux of the Medford BLM for all his help with this project.

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The Lovely Calypso: Entanglements with Fungi and Bumble Bees

by Rhoda Love, Emerald Chapter

Fairy slipper orchids (*Calypso bulbosa*) are among the jewels of our Northwest coniferous woodlands. Here the stunning pink orchid is often found in old and moist Douglas fir forests; however, we must overcome any provincial view of this favorite wildflower, for it is not ours alone. In North America, *Calypso* is broadly distributed and thus associated with many conifer species, among them pines, spruces, and hemlocks. In California, fairy slipper is found in the redwood forests of Marin, Del Norte and Siskiyou Counties. The orchid is found in Washington and British Columbia of course, and in the coastal forests of southeast Alaska. Further afield in North America the species also grows in Arizona, Colorado, Minnesota, Michigan, New York and Maine. Furthermore, and this may surprise you, the same species is well known in the forests of northern Europe and Asia.

The genus *Calypso*, which has but the single species, was named by Linnaeus who may have originally collected the plant on his journeys in Lapland. He named it for Kalypso of Greek mythology who was the goddess daughter of Atlas and Homer's beautiful nymph of the woods. The goddess Kalypso was encountered by Ulysses when wayfarer was shipwrecked on the Island of Ogygia. The word "Calypso" means "concealment," and in this case refers to the flower's place of growth in dense, shady forests.

With respect to *Calypso's* entanglement with fungi, permit me to digress for a moment to cover a bit of forest ecology and define mycorrhizal relationships. All Northwest tree species so far investigated have been shown to require mycorrhizal fungi for health and optimal growth. In the mycorrhizal relationship, underground fungal filaments wrap tightly around a tree's roots, channeling water and nutrients to the tree. Most local mycorrhizal fungi are Basidiomycetes (the so-called club fungi), and many are well-known mushroom species such as chanterelles,

matsutake, and the poisonous amanitas. As mushroom hunters well know, the fruiting bodies of these species can be found in the root zones of the trees with which they have a mycorrhizal association. Mycorrhizal relationships are incredibly ancient—as much as 400 million years old! The fossil record strongly suggests that the first rootless plants to emerge from water and colonize dry land brought fungi with them and that these aided in obtaining water and minerals in the harsh new environment. Perhaps it is not too great a leap to conclude that mycorrhizal fungi may have enabled plants to colonize the land.

Now, to return to *Calypso*, our hidden jewel of the forest. Mycorrhizal relationships can be even more complicated, involving two species of higher plant rather than just one. It can be difficult for a small plant, such as an orchid, growing in the shade to intercept enough sunlight for photosynthesis. Consequently, several groups of small forest herbs have evolved an intricate strategy for obtaining food—they receive nutrients from trees via mycorrhizal fungi. This type of association occurs in most orchids and in certain members of the heath family such as Indian pipe. Whereas many of these plants have lost their chlorophyll and cannot make their own food, *Calypso bulbosa* has a single green leaf and can carry on photosynthesis; however, the plant is mycorrhizal as well, and is never found far from the root zone of a conifer.

Finally, how is our demure, hidden *Calypso* entangled with bumblebees? Here I will quote one of the world's experts on pollination, a man who was one of my favorite and most eccentric professors when I was a student at the University of Washington fifty years ago. Dr. B. J. D. Meeuse, a Dutch-

man and a famous botanist, tells the following story of fairy-slipper pollination: "These lovely, innocent-looking orchids exploit "greenhorn" (ie. newly hatched) bumblebees. The flowers have nothing of real value to offer; they contain no nectar. However, they look (and smell) like flowers that do have some goodies to hand out. The young bumblebees are fooled, and will visit the *Calypso* flowers, but after a few tries they quit—in disgust, one would be tempted to say (if it were not so unscientific). They are replaced by other greenhorn bumblebees who on subsequent days continue to appear on the scene and have as yet had no unpleasant experiences."

So, in conclusion, our beautiful woodland *Calypso* has hitched itself to a fungus in order to obtain food from a tree, and also exploits unwary bees in order to set seed. Since many of the Greek gods and goddesses were opportunists in many ways, perhaps the Fairy slipper is aptly named for the goddess Kalypso.

(Marcia Andrews authored an article on *Calypso* in the May 1988 *Bulletin*, and Jean Herley wrote the most recent in August-September, 2001. An article on *Calypso* pollination appeared in *Madroño* (28)3, in 1981.)



Fairy Slipper, *Calypso bulbosa*, Fall Creek

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The Oregon Plant Atlas is Online!

by Scott Sundberg

The Oregon Flora Project is immensely pleased to announce a preview release of the Oregon Plant Atlas. We are presenting this initial version to NPSO members, and would appreciate your review and comments. The Atlas allows users to generate distribution maps of 98% of Oregon's plant species using locality data from over 265,000 records in the Atlas and OSU Herbarium specimen databases. The website for the Atlas mapping program is:

<http://www.oregonflora.org/oregonplantatlas.html>

As this is a work in progress, the site will likely undergo changes before the Atlas is announced to the general public. If you have comments about it you would like to share with Atlas Project staff, e-mail them to: OFAtlas@oregonflora.org. We are interested in hearing about how you are using the Atlas, as well as any difficulties you may encounter in navigating the website. If you think you have identified a mapping error, instructions on the website explain how it can be reported.

The NPSO and its membership have generously supported the Oregon Flora Project since its inception. It is with deep gratitude that we present this major component of the Flora Project to those who have been so instrumental in its development. The work on the Oregon Flora Project marches on—stay with us and watch as it improves and grows!

Request for an Eastside Conservation Coordinator

An Eastside Conservation Coordinator/Chair is being sought. Thanks to Bob Ottersberg from the William Cusick Chapter who has held the position for the past year. Responsibilities include working with chapters and the state board to identify and participate in public input on federal, regional, state, and local conservation-related issues that affect Oregon east of the Cascade crest. Letter writing, research, and occasionally meetings with officials or agency staff are typical duties of the position. A large time commitment is usually not required. If you are interested in serving NPSO in this position, please contact the president at president@NPSOregon.org.